

IN THE CLAIMS:

Claims 1-10 have been amended. All of the pending claims 1-30 are presented below.

This listing of claims will replace all prior versions and listings of claims in the application.

Please enter these claims as amended.

1 – (currently amended) Active barrier (1) for waters polluted by material lighter than the water and immiscible with it, used to contain and to collect a floating polluting material (5) which floats on a mass of water, said active barrier (1) being supported by two supporting units (2) and comprising a plurality of interconnected containment modules (3) provided with a pumping means able to pump out said floating polluting material in such a way that the resulting length of the active barrier (1) is enough to surround said floating polluting material (5), said active barrier (1) being characterised in that:

~~-said containment modules (3) are provided with a pumping means able to pump out said floating polluting material (5); and~~

~~-each of said supporting units (2) are is provided with traction and treatment assemblages (4), which are each connected to the two ends of the active barrier (1), said traction and treatment assemblages (4) serving to provide traction to said pumping means, and to collect and to treat said floating polluting material (5).~~

- each containment module comprises:

- at least two floats, made in a material having a density less than 1,0, stuffed with a hydrophobic material, with blocked ends in order to confine air into them, installed vertically one over the other, substantially rigid and tubular in shape, which serve to give the active barrier the ability to float;

- a skirt, rigidly connected to the underpart of the float, which is made in a flexible and high strength material, able to resist traction, said skirt having the same length as the float, said skirt serving to hinder floating polluting material to pass under the active barrier, said skirt at its undermost part being provided with a ballast made in a heavy material, but able to freely move to any direction, said ballast having the same length as the skirt, and being provided at its ends with a quick connecting system, which allow said

ballast of said skirt to be connected to a similar ballast existing in a skirt of an adjacent containment module, which serves to keep the active barrier stable and tensioned;

- two collecting tubes, which are provided with a plurality of openings, equally spaced apart along the entire length of each collecting tube, said openings being located in the face of the collecting tubes opposite to the floats, facing the mass of floating polluting material, in order to allow water and floating polluting material to enter into the collecting tubes, having the same length as the floats, substantially flexible, each of them located alongside each sides of the floats, said mixture of water and floating polluting material, to clean up the mass of water from said floating polluting material;

- two impeller modules, which displace in opposite directions into each collecting tube, said impeller module is in the shape of impeller bristles which project radially from a segment of cable;

- male and female relatively flexible quick connection joints, each of them located at opposite ends of each collecting tube of the active barrier, said connection joints allowing the collecting tube to be male to female interlinked, and therefore the containment modules, thereby forming the active barrier;

- a pumping train comprises a plurality of impeller modules which displace into the collecting tubes, said displacement of the pumping train into the collecting tube causes a suction effect, due to the differential pressure derived from such displacement, which causes a mixture of water and floating polluting material to be sucked into the collecting tube through the openings, the collected fluids being then carried to the supporting unit by the pumping effect caused by the displacement of the pumping train, each impeller module existing into each collecting tube of each containment module of the active barrier has the same length as the collecting tube, said impeller module comprising a plurality of impeller cups equally spaced apart and fixed to a segment of cable, the latter being provided in each of its ends with a quick connector, which enables the impeller module to be connected to a impeller module of another containment module;

- a traction and treatment assemblage comprises:

- a tank, comprising a first hermetic compartment which is used to collect the mixture of water and floating polluting material collected in the active barrier and to wash

the impeller cups by immersion in solvents, a second hermetic compartment used to receive and to treat the mixture of water, polluting material and solvent which come from the first hermetic compartment and a third hermetic compartment, in which said impeller cups are rinsed by means of jets of fluid, before the impeller cups come back to the active barrier, said first, second and third hermetic compartments serving to collect and to treat the collected water and floating polluting material;

- two connecting tubes, rigidly connected at a first end to the tank, which are curved in such a way that the second end can be set at the ocean level, said second level being connected to a collecting tube of a containment module of the active barrier, said connecting tubes serving to ultimately carry the mixture of water and floating polluting material collected in the active barrier to the tank;

- two vertical double pulleys, both located into the tank, a first one located at the first hermetic compartment, and a second one located at the third hermetic compartment, the first pulley serving to guide the pumping train arising from one of the connecting tubes towards said first, second and third hermetic compartments, and the second pulley serving to guide the pumping train when it leaves the tank towards the other of the connecting tubes connected to the active barrier;

- two horizontal guiding tubes, located immediately after the last pulley, serving to guide the pumping train in the interior of the tank;

- a traction device, horizontally located at the upper part of the tank, driven by a source of power, said traction device comprises a cylindrical body connected to a central shaft by spokes, said cylindrical body being additionally provided with traction cradles, which number depends on the spacing of the impeller cups long the pumping train, fixed to some of the spokes, said traction cradles serving to receive into them and to urge to move forward an impeller cup of the impeller module, said traction device causing the pumping train to displace into the collecting tubes of the containment modules which form the active barrier.

2 – (currently amended) Active barrier-(1), according to claim 1, characterised in that each containment module (3) comprises:

~~-at least two floats (31), installed vertically one over the other, substantially rigid and preferably tubular in shape, which serve to give the active barrier (1) the ability to float;~~

~~-a skirt (32), rigidly connected to the underpart of the float (31), which is made in a flexible and high strength material, able to resist traction, said skirt (32) having the same length as the float (31), said skirt (32) serving to hinder floating polluting material to pass under the active barrier (1). Said skirt (32) being provided with a ballast (321) at its undermost part, which serves to keep the active barrier (1) stable and tensioned;~~

~~-two collecting tubes (33), having the same length as the floats (31), substantially flexible, each of them located alongside each sides of the floats, (31), said collecting tubes (33) serving to collect and to transport to a location the collected mixture of water and floating polluting material, to clean up the mass of water from said floating polluting material;~~

~~-male and female relatively flexible quick connection joints, (34), each of them located at opposite ends of each collecting tube (33) of the active barrier (1), said connection joints (34) allowing the collecting tube (33) to be male to female interlinked, and therefore the containment modules (3), thereby forming the active barrier (1). the structural components of the containment modules of the active barrier being interconnected by pipe brackets.~~

3 - (currently amended) Active barrier, according to claim 1, characterised in that ~~the structural components of the containment modules (3) of the active barrier (1) being interconnected by means of external connecting means~~ said heavy material are chains.

4 - (currently amended) Active barrier, according to claim 1, characterised in that ~~external connecting means preferably comprise pipe brackets (35)~~ said openings are circular in shape.

5 - (currently amended) Active barrier, according to claim 1, characterised in that ~~the ends of said tubular floats (31) are blocked in order to confine air into them~~ said openings are sloped oblong in shape.

6 - (currently amended) Active barrier, according to claim 1, characterised in that ~~floats (31) are stuffed with a hydrophobic material~~ said openings are elliptical in shape.

7 - (currently amended) Active barrier, according to claim 1, characterised in that ~~said floats (31) are integrally made in a material having a density less than 1,0~~ said openings have the shape of a integral "S".

8 - (currently amended) Active barrier-(1), according to claim 1, characterised in that ~~said ballast (321) of the skirt (32) is made in a heavy material, but able to freely move to any direction, said ballast (321) having the same length as the skirt (32), and being provided at its ends with a quick connecting system (3211), which allow said ballast (321) of said skirt (32) to be connected to a similar ballast (321) existing in a skirt (32) of an adjacent containment module (3)~~ said displacement of the pumping train into the collecting tube causes a suction effect, due to the differential pressure derived from such displacement, which causes a mixture of water and floating polluting material to be sucked into the collecting tube, through the openings, the collected fluids being then carried to the supporting unit by the pumping effect caused by the displacement of the pumping train.

9 – (currently amended) Active barrier-(1), according to claim 1, characterised in that ~~said heavy material preferably comprises a chain~~ said pumping train coming from one of the collecting tubes of a containment module at one end of the active barrier enters into one of the connecting tubes, is guided by one of the pulleys into the first hermetic compartment, and reaches

one of the guiding tubes, which guides said pumping train to the traction device, which exert traction in the pumping train, said pumping train is then guided to the other of the guiding tubes, passes by the second one of the double pulleys located at the interior of the third hermetic compartment, enters into the other of the connecting tubes, and is finally introduced into the other of the collecting tubes of the same containment module of the active barrier previously mentioned.

10 - (currently amended) Active barrier-(1), according to claim 1, characterised in that ~~said collecting tubes (33) are provided with a plurality of openings (331), equally spaced apart along the entire length of each collecting tube (33), said openings (331) being located in the face of the collecting tubes (33) opposite to the floats (31), facing the mass of floating polluting material (5), in order to allow water and floating polluting material (5) to enter into the collecting tubes (33) three traction cradles are angularly distributed in the edge of the cylindrical body of the traction device.~~

11 - (canceled)

12. (cancelled)

13. (cancelled)

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28. (canceled)

29. (canceled)

30. (new) A Method to deploy an active barrier characterised in that it comprises the following steps:

a – positioning two supporting units near a body of floating polluting material to be confined;

b - connecting two impeller modules of a first containment module of the active barrier to two impeller modules located into a traction and treatment assemblage located at one of the two supporting units, the connection being made by quick connectors;

c - connecting collecting tubes of said first containment module of the active barrier to the ends of connecting tubes of the traction and treatment assemblages, by means of connection joints;

d - connecting two impeller modules of a second containment module of the active barrier to the ends of two impeller modules of the first containment module of the active barrier;

e - connecting the end of a ballast of a skirt of the second containment module of the active barrier to the end of a ballast of a skirt of the first containment module of the active barrier, by means of a connecting system;

f - connecting the collecting tube of the second containment module of the active barrier to the end of the collecting tube of the first containment module of the active barrier, by means of the connection joints;

g - repeating the above steps "d", "e" and "f" until the length of the active barrier is enough to surround the floating polluting material;

h - connecting the two impeller modules of a last containment module of the active barrier to the two impeller modules in the traction and treatment assemblages of the second supporting unit, by means of the quick connector;

i - connecting the collecting tubes of the last containment module of the active barrier to the ends of the connecting tubes of the traction and treatment assemblages, by means of the connection joints;

j - driving the pumping train by means of each traction device existing in each of the two supporting unit, at the same time.